

TOPIC FOR DISCUSSION:
ARE VALIDATION TOOL SPECIFIC SCENARIO NEEDED?

First questions addressed

- FTS and RTS:

On first inspection the scenarios used in fast-time simulations differ from those used for real-time HITL studies. Fast-time will typically look at a much larger traffic sample time-period, real-time will use more detailed procedures.

However, can these be seen as two instantiations of the same standard scenario or is it really necessary to define scenarios according to the validation tool that will be used?

Is it possible to describe a standard process for transforming fast-time scenarios for use by real-time (and maybe vice versa)?
- Simulation and other tools:

We tend to associated scenarios with simulation tools but can we equally build in links to other validation tools (e.g.: CBA, analytical tools,...)?

HIGH LEVEL IDEAS

- **FTS tools common scenarios and components**
- **RTS tools common scenarios and components**
- **FTS and RTS common understanding**
- **Other tools and its scenarios**
- **Some examples of scenario data interchange between tools**

Fast Time Simulation Tools

- **FTS: Model Based Simulations (fully virtual world)**
- **Several and very different tools all over the world:**
 - **RAMS, TAAM, OPAS, SIMMOD, Airport Machine...**
- **Are tools scenario dependant? Are scenarios tool dependant?**
- **Is there a common “*FTS scenario*”?**
- **Are there common FTS components to all or, at least, some tools?**
- **Can data of the components be interchanged easily from one tool to another? (ATM model)**

Real Time Simulation Tools

- **RTS: Dynamic Simulations**
 - **HITL (Human In The Loop) +**
 - **real HMI (Human Machine Interface)**
- **Several and likely different systems (architectures, HMI...) all over the world:**
 - **Avenue compliant, ESCAPE, ATS Provider's Proprietary...**
- **Are systems scenario dependant? Are scenarios systems dependant?**
- **Is there a common “*RTS scenario*”?**
- **Are there common RTS components to all or, at least, some tools?**
- **Can data of the components be interchanged easily from one tool to another? (ATM model)**

FTS and RTS common understanding

- **RTS: Dynamic Simulations**
 - **HITL (Human In The Loop) +**
 - **real HMI (Human Machine Interface)**
- **FTS: Model Based Simulations (fully virtual world)**
- **Several and different systems (architectures, HMI...) and tools all over the world:**
 - **RTS: Avenue compliant, ESCAPE, ATS Provider's Proprietary...**
 - **FTS: RAMS, TAAM, OPAS, SIMMOD, Airport Machine...**
- **Is there a common “*RTS-FTS scenario*”?**
- **Are there common RTS and FTS components to all or, at least, some tools?**
- **Can data of the components be interchanged easily from one tool to another? (ATM model)**

Other tools

- **CBA**
- **Analytical. E.g.: CAMACA, MACAD, FAA Capacity and Delay Model,...**
- **What type of scenario, components, data... do they use?**
- **Is there a common “Tool-dependant *scenario*”?**
- **Are there common components to all or, at least, some tools?**
- **Can data of the components be interchanged easily from one tool to another? (ATM model)**

SCENARIO DATA INTERCHANGE (some examples)

- **OPAL (European Commission Vth Framework Program)**
Pair of tools interchange of data through a common data base:
 - **FTS-Analytical tool (TAAM-CAMACA)**
 - **FTS-FTS**
 - **Analytical-Analytical**
- **FTS-RTS scenario translation (Aena):**
 - **Multi-tool: TAAM-SACTA-TAAM, RAMS-SACTA-RAMS**
 - **Environment data (airspace, routes, waypoints,...)**
 - **Traffic data (flights, fight plans, aircraft types,...)**
- **In-house and SW providers model converters:**
 - **FTS: RAMS-TAAM-RAMS, SIMMOD-RAMS**
 - **FTS-Analytical: SIMMOD-CAMACA**
 - **Avenue compliant RTS platforms**
- **Other tools and its scenarios...**
- **Towards Unique FTS-RTS-Analytical model: e.g. PITOT (under development)**

Back to the question

- **ARE VALIDATION TOOL SPECIFIC SCENARIO NEEDED?**
 - Is it feasible?
 - To what type of tools?
 - For what type of scenarios/exercises/projects?
 - Is it useful?
 - Is it efficient?